SB
199
B32

LIBRARY
ANNEX
2

ALBERT R. MANN
LIBRARY

NEW YORK STATE COLLEGES
OF
AGRICULTURE AND HOME ECONOMICS

AT

CORNELL UNIVERSITY

Cornell University Library
SB 199.B32
Observations on the formation of permane
3 1924 003 385 014
mann

Cornell University Library

The original of this book is in
the Cornell University Library.

There are no known copyright restrictions in
the United States on the use of the text.

http://www.archive.org/details/cu31924003385014

Monthly reports

OBSERVATIONS

ON THE FORMATION OF

Permanent Meadows and Pastures.

BY

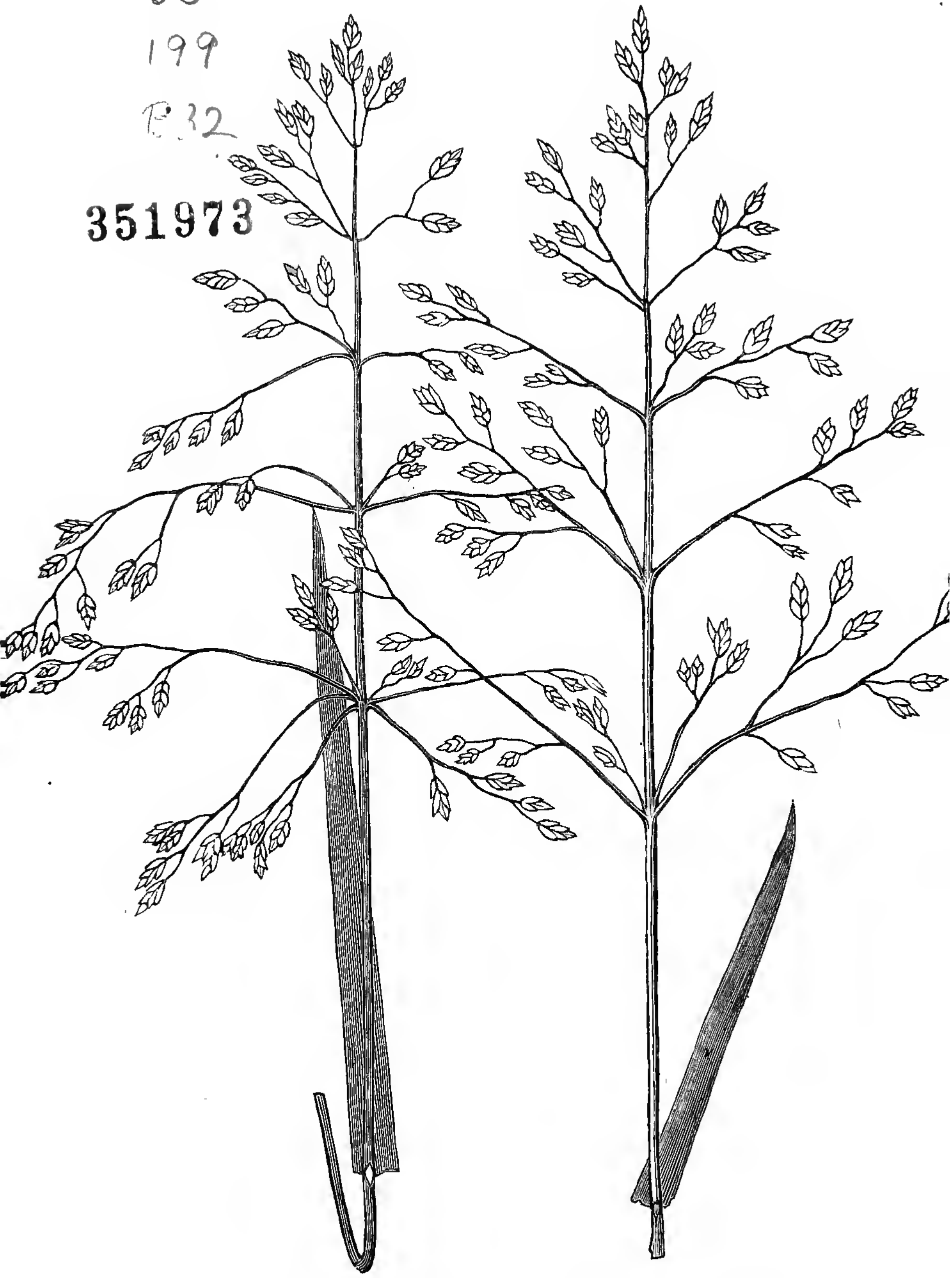
DANIEL BATCHELOR,

UTICA, N. Y.

UTICA, N. Y.
PRESS OF CURTISS & CHILDS,
1884.

SB
199
B32

351973



ROUGH STALKED MEADOW GRASS.
(1. *Poa trivialis.*)

SMOOTH STALKED MEADOW GRASS.
(2. *Poa pratensis.*)

GRASS.

"Thank God for grass! No other glory vies
With the refreshing glory of the grass;
Not e'en the blue of the o'erbending skies
Nor fading splendors when the daylight dies,
Can this sweet smile of living green surpass."

Prof. Flint, in his book on grasses, says: "I hold this proposition to be indisputable that ANY SOIL will yield a larger and more nutritive crop, if sown with several kinds of nutritious grasses than when sown with only one or two species. Indeed it is a fact well established, by careful experiments, that a mixture of only two or three species of grasses and clover will produce a less amount of hay than can be obtained by sowing a larger number of species together. I am aware that the

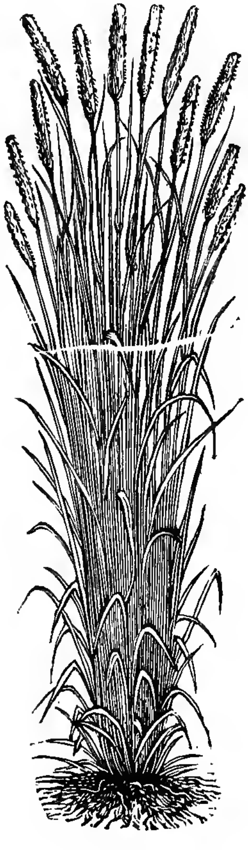
Prevailing Practice

is decidedly against the use of anything but timothy and clover, and that large crops of these, under favorable conditions, are often raised; but it is nevertheless true that we obtain, on an average, no more than a ton to the acre, while with the same culture and a larger number of species we ought to get more than double that quantity of hay."

A large item of expense in farming accounts arises from the constant seeding of meadows with nothing but timothy and clover, as if these were the only fit grasses for hay, and yet there are other grasses not only as good as timothy, but also possessing a power of permanence and of producing a good sward, thereby protecting the timothy from upheaval by frost. A permanent meadow is almost impossible on some lands, where

Timothy and Clover

are the only forage grown, and yet, as Prof. Flint says, many believe that these are all that are needed, notwithstanding the fact that many meadows thus treated will not produce more than one mowing without reseeding. In fact, a close mowing, followed by hot, dry weather, will often destroy the bulbous roots of the timothy entirely, thus causing that grass to disappear, leaving no aftermath at all.



TIMOTHY.

Although timothy is one of the most nutritive of grasses, yet under the usual conditions it stools but little and its aftergrowth is always thin, thus showing plainly that to keep this grass well in the ground, especially where liable to heave with frost, it ought to be grown with such other meadow grasses as will ripen with it; by so doing, good heavy hay will be produced, the aftermath will be thick, and the sward less liable to heave in winter, while the timothy can be held in the ground for many successive years, thus avoiding the extra expense and labor of constant re-seeding.

What then are the best mixtures for meadows in our state? That is, what are the best to ripen evenly in our climate with the timothy and clover for good hay? The question is not what are the best for Old England or even for some portions of New England. It is not even what are the best varieties for Eastern Pennsylvania, the States of New Jersey and Connecticut, but it is what are the

Best Meadow and Pasture Grasses

to grow in the great grazing lands of New York? Almost all distinguished writers on grasses in this country follow the lead of the English authorities, and recommend in their meadows mixtures grasses and forage plants, some of which will not ripen uniformly with our staple grass, timothy, while others are added to their mixtures that will not stand the winters of Central New York. It is worse than useless to sow tender grasses or forage plants in Oneida and bordering counties. What is required there is good, hardy, succulent grass that will ripen or nearly so with the timothy.

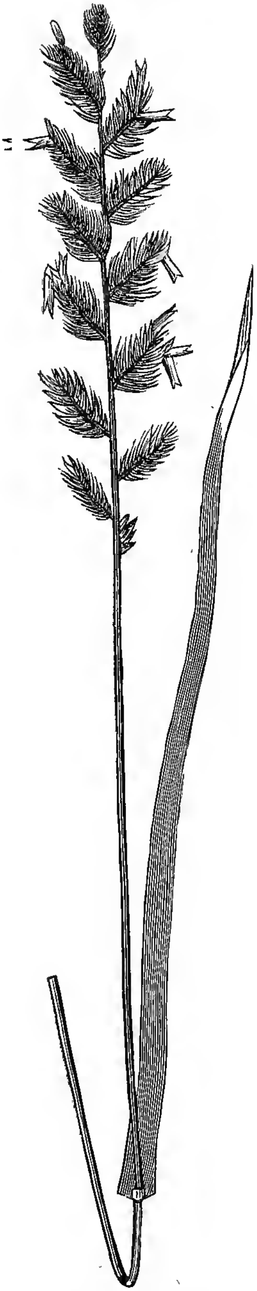
As already intimated, almost all writers on the grasses in this country conclude their essays or books with a formula of meadow grasses for the whole Northern States, regardless of the

Differences of Climate.

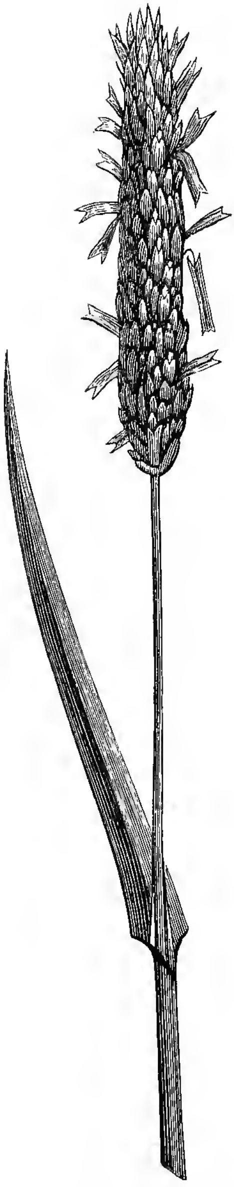
Some writers advocate a score or more of grasses to grow with timothy; conspicuous among which are the two large, valuable and very early varieties, orchard grass (*Dactylis glomerata*) and the meadow oat grass, (*Avena elatior*,) which are altogether too early to grow with timothy; but when these two, the oat grass and the orchard grass, constitute together a meadow in about equal proportions, no combination of grasses can be more profitable to the dairy farmer, either for early hay or afterwards for soiling or late pasturing.

I am reluctantly led to the conclusion that there are but few grasses adapted to our Central New York meadows. I mean by this that there are but few that will stand the climate and ripen evenly together, making a good uniform swath with our timothy. I name such as my own observation and actual test on bleak uplands and in intervales have shown, that, by their time of ripening, hardiness, structure and altitude, they are adapted to our meadows and to grow with timothy and clover.

Rough stalk, Fowl meadow, Yellow oat, Meadow foxtail, Italian rye, Tall fescue, Hard fescue, Meadow fescue, Devon eaver, Red top, and Sweet Vernal for savor.



Crested Dogstail.
(Cynosurus cristatus.)



Meadow Foxtail.
(Alopecurus pratensis.)

The grasses above named are most of them good not only for meadow but for pasture after one or two mowings. I name

Separate Mixtures

for meadows, and also for pastures, such as I know have been productive of the very best results:

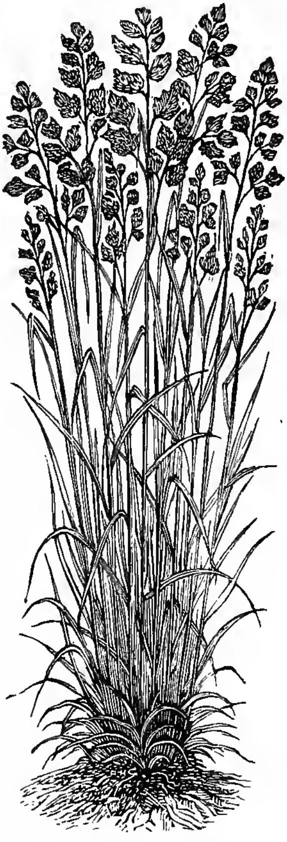
For an average meadow per acre: A mixture consisting of 12 lbs. timothy, 5 lbs. Italian rye grass, 5lbs. meadow fescue or tall fescue, 4 lbs. red top, 3 lbs. rough stalk meadow grass, 3 lbs. fowl meadow 1 lb. sweet vernal, 6 lbs. medium clover, or, if the meadow is moist, alsike may be introduced, the red top rough stalk and fowl meadow increased, and the fescue and clover lessened.

For a permanent pasture: Per acre, 5 lbs. Kentucky blue grass, 5 lbs. meadow oat grass, 5 lbs. orchard grass, 5 lbs. meadow fescue, 5 lbs. red top, 2 lbs. sweet vernal, 2 lbs. Pacy's rye grass, 2 lbs. rough stalk, and if not natural to the land, 2 lbs. white clover.

Though not entirely pertinent, it may not be out of place to say that the

Best Lawns.

I have ever seen, and some of which I have made, the grasses were composed of a mixture, in about equal proportions, of Kentucky blue, hard fescue, red top, crested dogs-tail and Pacy's dwarf rye. The introduction of white clover into a lawn is a matter of taste —in some soils a matter of necessity. I prefer the grasses only. Among the most useful and hardy of Northern grass is the well known orchard grass or *Dactylis glomerata*, which the English farmers named "rough cock's foot," from its fancied resemblance to the foot of a chanticleer. This grass with us is a native perennial and very hardy. Indeed it has recently been found growing in Alaska. It is one of the most valuable grasses in our country, and is the earliest and the most rapid in its growth of all the northern grasses; the more it is cropped the better it thrives, while all kinds of stock delight to feed on it when it is young; and it is highly appreciated by all good farmers the world around.


ORCHARD GRASS.

Meadow Oat Grass

or *Avena elatior* is a most valuable grass either for pasture or to grow with orchard grass, as it is very hardy, ripens early, is very luxuriant in grouth, stools well, withstands drowth, and produces abundance of early and late foliage, which is highly relished by cattle. Meadow Oat Grass is the reliable and most abounding grass known in French agriculture.

Italian Rye Grass,

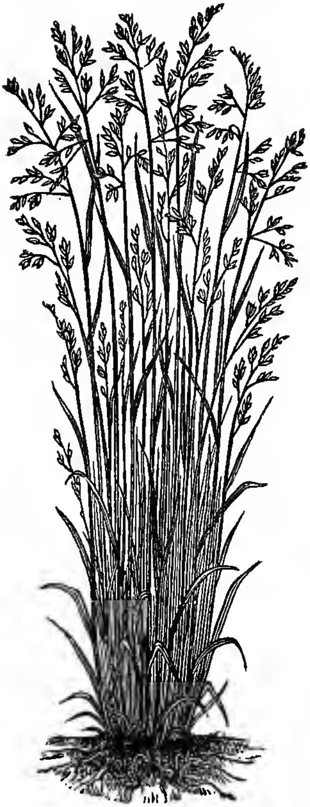
Lolium Italicum, is on the continent of Europe what timothy is to America, the approved grass for all climates and situations; having, too, this advantage over timothy that it frequently produces a second crop of hay and a rich aftermath. In Britain it is the grass most resorted to for soiling, as it will continue to grow repeated cuttings all through the season. By Way's analysis, Italian rye grass ranks very high in nutritive value. It is not, however, a perennial grass, though it will often show itself abundantly for the third and sometimes the fourth year after seeding. It is, therefore, more than a biennial.

Meadow Fescue

is known in West Virginia as Randall's grass, and in some sections it is known as evergreen grass. It is a grass which is slowly gaining ground in our pastures to the displacement of, or at least to a joint occupancy with, our June grass. It ripens later than the June grass and has a plumey top, inclining to one side, the seed husks being oat-shaped before flowering and much larger than the June grass. The latter carries its top erect and spreads out all around its flower branches almost horizontally from the rachis or connection with the stem. Between meadow fescue, or *Festuca pratensis*, and tall fescue, or *Festuca elatior*, I have never been able to discriminate; there are authorities who contend that these are identical, climate and soil only making the difference.

Perennial Rye Grass

is supposed to be of English origin and has been well known and approved there for two hundred years. This rich grass is not entirely hardy in our climate when grown alone; yet reports from the Guelph, Canada, experiment farm speak of it in high terms when grown as a component of meadow mixtures.



MEADOW FESCUE.

Pacy's Scotch variety of rye grass is too short for our meadows; it is, however, one of the early grasses, is hardy; its roots being fibrous and very tenacious it will stand any amount of cropping or cutting and will spring up in rich green aftermath till late in autumn When sown with

Crested Dogstail

grass, the combination will make the best kind of sheep pasture, as both are fine succulent dwarf grasses and will keep on sprouting all summer, no matter how much the pasture is nibbled by the sheep. The great depth to which the roots of crested dogstail extend, insures its vitality and vigor in the hotest weather.

Red Top,

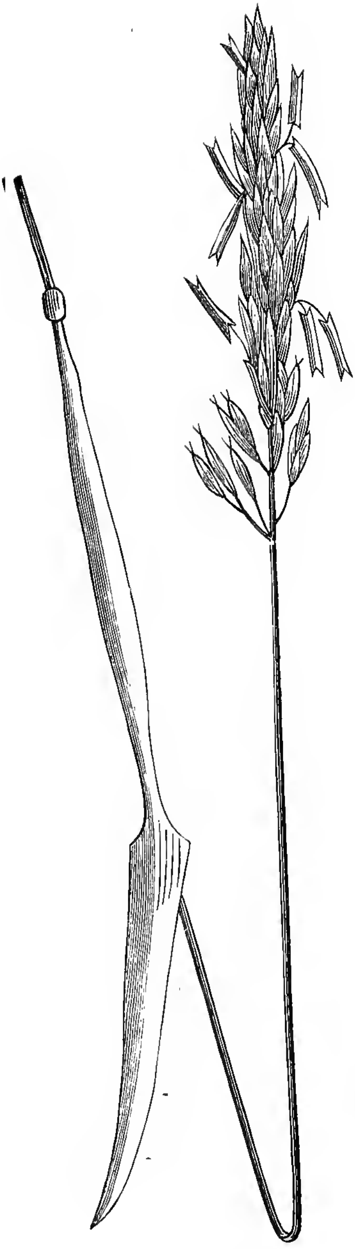
or *Agrostis vulgaris* is a variety of what is known in England as "bent grass," of which there are many kinds so closely related that botanists do not attempt to distinguish them. Red top, Rhode Island bent, the herds grass of Kentucky, the varieties of English bent and what is called Borden's grass are one and the same; the difference in color of the top from white to purple and to brick red are but the results of climate or soil. The red color, however, seems to be more fixed in this grass than any other shade. Red top is of European origin. As it is a hardy perennial, and produces in a rich meadow with other grasses good, fine hay, it ought to be cultivated. Red top, like oat grass, is very social and will disappear in patches when sown alone, as if it were inviting other grasses to occupy the vacant places. It is an entire mistake to suppose that red top is only adapted to moist land. It will grow abundantly, but stunted, on a sandy knoll in company with the vilfa grass.

Kentucky Blue Grass,

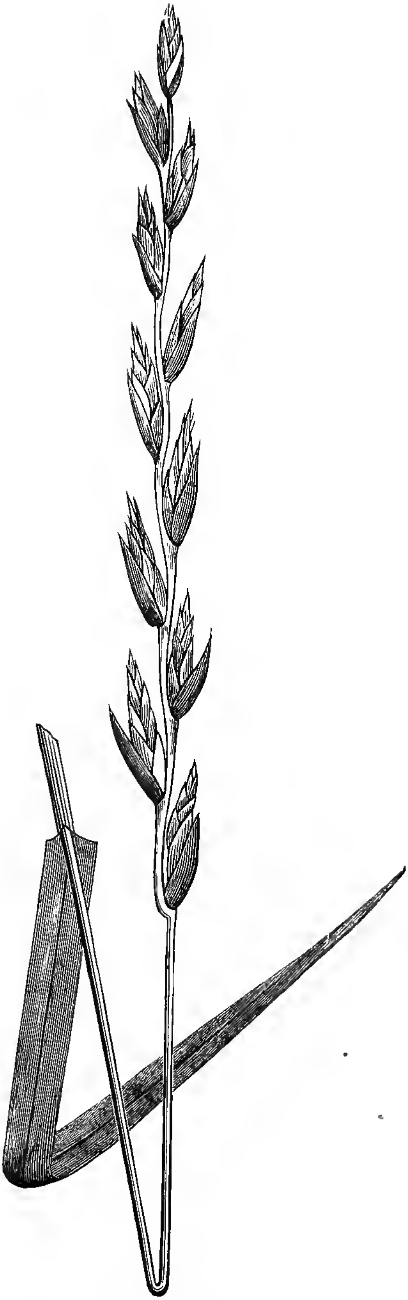
or *Poa pratensis* is identical with what is known in this and the Eastern States as "June grass." The Pennsylvanians call it "green meadow grass" and the Jerseymen know it as "spear grass." The English farmers know it as "smooth stalk meadow grass." I think that there is some doubt as to whether it is or is not indigenous. At any rate it is found abundantly all over Europe, and is very popular in England both as a pasture and a meadow grass. The farmers of the British Isles say that June grass produces the finest, softest and most digestible hay. Prof. Way rates its nutritive qualities below orchard and timothy grass; but may not its fineness and the fact that it is easily digested make it equal if not superior in nutritive power to many grasses which rank higher in analysis, for flesh forming and heat producing properties? The farmers of Kentucky know that it will make large fat cattle, and the cheese-makers of Herkimer County in our State know full well the value of this grass, for it forms over sixty per cent. of their pastures and comes on thickly in their old meadows. Kentucky blue grass does not produce much from the first crop after seeding, but when once established with other grasses it produces the sweetest of hay and is remarkable for its vigorous growth in autumn.

Fowl Meadow Grass,

or *Poa serotina*, is very common in the Eastern States and is highly approved of for a pasture grass. As it never becomes so coarse that its stalk is not tender, and continues to throw up green shoots, it can be mown early or late. It is not easy, at certain stages of its growth, to distinguish this grass from the meadow spear or *Glyceria nervata.*



Sweet Vereal Grass.
(Anthoxanthvm odoratum.)



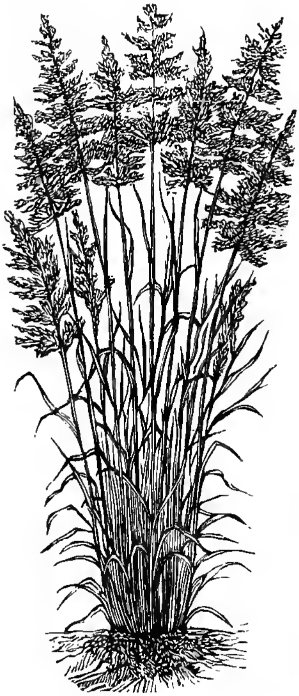
Evergreen Rye Grass.
(Lolium perenne Semrervirens.)

Rough Stalked Meadow

grass, or *Poa trivialis*, ranks high, by Sinclair and Parnell's analysis, for its nutritive qualities and is a good pasture grass. Sutton says of it: the superior produce of this Poa over many other grasses, its highly nutritive qualities, the season at which it arrives at perfection, and the partiality animals have for it are merits which distinguish it as a most valuable grass for most situations.

Meadow Foxtail,

or *Alopecarus pratensis*, is an European grass closely resembling timothy, but its roots are much more fibrous and tenacious, the flowerspike, more slender, shorter and softer, and being so much earlier in flower it need not be mistaken for timothy. Dickson says that it is one of the most valuable of natural grasses, whether for bulk, produce, quality, earliness or succession. I have never seen this grass on uplands, but it may be found in strong, moist land, like the vales and intervales of the Oriskany and the Saquoit, where it is often seen. It is difficult to save the seed of this grass, as it is infested, when in blossom, by an insect which delights to burrow in the soft husks of the flower.


RED TOP.

Sweet Vernal

grass, or *Anthoxanthum odoratum*, does not rank as high as some others for nutritive qualities, yet animals like it. and it imparts a most delightful healthy odor to hay. This grass in productiveness is not equal to the tall fescues, yet it is of fine quality and produces much late foliage, and it is a well known fact that where it abounds in English sheep walks, that there the finest flavored mutton is produced. Who can tell how much comfort is given to an animal by mere sweet savor, even when there is but little nutrition in the aliment? Who can tell what amount of mechanical action is necessary in giving bulk or distension to the stomach of a ruminant? Who can tell what is assimilated by, or what is eliminated from the minute vesicles of an animal? Be that as it may, there can be no doubt but what the sweet vernal grass fulfills its place and functions in the mass of gregarious grasses by which it is surrounded. Sweet vernal is the only northern grass which produces benzoic acid. I am inclined to think that this acid not only gives the grass its aroma, but imparts to the secretions of animals feeding on it an antisepic property, for it is well known in pharmacy that benzoic acid even in minute quantities is a powerful preservative of cerates and fatty compounds of all kinds. If this speculation is well based, or even if a slight savor of the aroma only is imparted to butter made from animals feeding on sweet vernal, it should be encouraged to a limited extent in our meadows and pastures. There are annual grasses of the various varieties cultivated in Europe ; notably Schroeder's Brome grass, which is a fine soiling plant.

The Social Nature of the Grasses

has already been noticed. It is said that Sinclair found in the old pastures of England as many as thirty varieties in the space of a foot square. It has been ascertained, by repeated experiment and observation, that many grasses will almost entirely disappear in a few seasons, if sown and grown alone. Yellow oat grass will die out the second seasons from the seeding, if sown and grown alone. Red top, as before stated, will die out in patches, if not accompanied with other grasses. It is true that there are but few regions in America where can be shown such luxuriant grassy verdue as is to be seen in the British Isles. Yet there are grass lands in the valley of the Mohawk and in the latteral vales, the Saquoit and the Oriskany, that would not discredit any country, and notably a permanent meadow in New Hartford, Oneida County, owned by Mr. Morgan Butler, who has cut from it, on an average, over two tons to the acre for the last fifteen years, besides the fall feeding. In this meadow can be found fescues, oat grass, bent grass, Kentucky blue grass, rough stalk, timothy, vernal grass and clover, all rejoicing in social profusion together.

The Great Mistake

we make is in not recogizing the social character of the grasses, and that they are in this respect, like the forests, where a great variety of trees grow together. 'Tis true that we sometimes see solitary "pine barrens" instead of multiplied varieties of deciduous and evergreen trees; but the very term "pine barrens" tells us what is the matter. So, also, do we see the solitary vilfa, the comb, and the poverty grasses, in poor lands, and glycerias in the swamps; but wherever the land is good and the pasture unvexed, there, as in Mr. Butler's meadow, do we see the grasses in many varieties growing together. There is plenty of timothy in the Butler meadow, yet none has been sown there for many years; thus showing that, with other grasses to make sward; the timothy will not "run out" as the phrase goes. It would seem that a mere statement of these facts is an argument sufficient in favor of introducing a greater variety of mixed grasses into our meadows.

The practice of seeding down with timothy and clover only, for pasture, after once or twice mowing, is very poor economy, and often results in utter failure. But, if with the timothy and clover are sown such meadow grasses as I have indicated, in proper quantities, then the field may be mown a year or two, if required, and a good permanent pasture made.

It may not be inappropriate to say something here of the effects of

Sweet Herbage

on the flavor and savor of meat, milk, butter and cheese. Two or three years ago a leading agricultural paper in an editorial stated the following: "Mere cleanliness will not, of itself, give sound milk and cheese that will satisfy foreign consumers, unless the

Regime of the Cow

is strictly watched. If her food is unnatural and the water she drinks impure, she may give as much milk as ever, but the milk has a ferment in it which will breed mischief in the cheese and malady in those who use the milk. No one who uses milk or cheese can be sure that his food is always wholesome and harmless unless he knows that the grasses and roots the cow eats are sweet and the water she drinks is limpid and pure." This is wisely and tersely said. It is conceded by all that the hay, grass, roots, grain and water on which the cows feed must be clean and sweet, else the

Best Results

can not be obtained either in butter or cheese making. The mere art of making Parmesan and other kinds of Italian cheese is well and widely known all over Europe, but what fields are there outside of the dairy region of Italy, where every noxious weed is exterminated, the highest possible culture of the meadow practiced and the greatest number of nutritive grasses and aromatic herbage encouraged? It is well known that the peculiar richness of Parmesan cheese is attributed to the Italian rye grass which attains to the highest perfection in Parma as well as elsewhere, under irrigation, in the fertile and highly cultivated valley of the river Po.

In a recent report of the United States Vice Consul, Crain, dated from Milan, on dairying in Italy, he described the process of making the various famous Italian cheeses, and shows how extensively they are exported to all parts of the world. Of the

Gorgonzola Cheese

he says that it sells at twenty cents per pound where it is made, and also that this famous cheese took the prizes last year at London, Paris and at Florence. Mr Crain says abruptly that: "Its excellence is due to the healthy and aromatic plants which abound in the region where it is made." The poet says of another famous cheese:

> "The milder Switzer hath a flavor
> Of marjoram and mountain thyme,
> An odiferous Alpine savor—
> You almost hear the cowbells chime."

That the flavor and savor of the food on which animals are fed permeates the flesh, the fat and the lacteals is not doubted any more than that the

Rich Flavor

of the butter and cheese of some localities owe their good qualities as much to the herbage on which the cattle are fed as they do to any manipulation in the dairy, be it ever so skillful and careful. The farmers on the Schuylkill and elsewhere in Eastern Pennsylvania do not doubt that the rich aroma in their butter is in a great measure to be attributed to the sweet grasses growing in favorable localities on their lands. No city on this continent is supplied with better butter than is the city of Philadelphia.

The *Pre sali*, or salt meadow taste of the Normandy coast mutton, so much liked by the European epicures, the delicious aroma and flavor of the Welsh mutton, and the fine flavor of the Georgia Islands lamb and pork are all to be attributed to the herbage on which the animals are fed. And as I have already stated, it is well known that the sheep walks of Kent, England, where the sweet vernal abounds, the finest flavored mutton is produced. The severity of

Our Winters

will not permit the perennial growth of marjoram, thyme and many other aromatic herbs on which the cattle of England and some other European countries delight to browse, yet kind nature is ever ready with her adaptions and her compensations. There is, therefore, no reason why the herbage in the meadows and pastures in the grazing grounds of New York should not be improved, if we only set to work earnestly and introduce grasses that are of known good quality and hardy enough to be adapted to our climate.

Treatment of Grass Lands.

As to the preparation and treatment of land for permanent meadow or for pasture it is quite certain that the best results can only be obtained on land that is either naturally or artificially drained.

Experience has taught European farmers that the best system of drainage is not that which carries off rain or surface water too quickly, but that the best drainage is that which secures slow percolation and perfect filtration of the water through the soil, so that when it reaches the drains it shall not be charged with fructifying and nutritive matter in the shape of alkalies and nitrogen.

Shallow drains during a wet season carry off the soluble fertilizers from the soil. Deep drains, on the contrary, do not rob the soil but add to its fertility by carrying off the cold, stagnant waters, and only rendering the sub-soils warmer and more permeable to the roots of grasses, grain and clover.

It is of the utmost importance that those lands which are to be devoted to permanent grass should be clean and in good heart. It is not always convenient to bring such lands to a high state of fertility before seeding down, yet for good success much may be done by top dressing after the grass is up, and especially immediately after mowing. If the land is foul when prepared for seeding, it is well to let it lie dormant for a week or so, in order that the weeds may vegetate first, and then to harrow again before sowing, which will destroy the sprouted weeds and greatly improve the seed bed. With regard to the time most favorable for sowing, there can be no fixed rule; the condition of the weather is of chief consequence, and if the sowing can be so timed as to precede showers success is certain either in spring or fall, provided it be not later in the autumn than the first week in October. The best results in Central New York are from seeding in May and September. Although sowing with grain is the common rule, yet there are many instances of an almost entire smothering of the grass by this practice, especially where the grain crop is very heavy. Where a good meadow or pasture is the great object, the safest and best plan is to sow the grass seeds alone. The secret of success, however, is to sow many kinds together so that there may be a succession of grasses all through the seasons of growth and late into autumn—especially for pasture. In no case should the new seeding for pasture be stocked with sheep the *first* season, as many of the fine grasses would be pulled up, root and blade, or nibbled so close in the crowns that the plant would not withstand our rigorous winters. It would be well to mow rather late the first season, and then dress with rotten compost, to be followed in the spring with a top dressing of 200 lbs, super-phosphate, 100 lbs. ground bone, 100 lbs. kianit, and 100 lbs. salt, to the acre, which should be applied as soon as practicable in March or April. In the second year, if a meadow, it may be mown and then grazed, as soon as the grass is in condition. To keep the land in good heart and the grasses in good condition, annual top dressing as above stated should be given.

"Because land has been laid down to permanent grass it must not be supposed that there is no more work to be done, for it will pay for attention as well as arable land."

Apart from the grasses proper there are varieties of forage plants cultivated in Europe, many of which have not proved of much use in American agriculture. We do not cultivate to any extent Sainfoin, Saradella, Milfoil, Burnett, Broom, Lentils, Sheep's Parsley, Gorse, Tares, Blue and Yellow Lupines, Melilot and Succory. BUT LUCERNE is an economical plant of immense value in America, especially on deep, dry, light soils, where its tap root can penetrate to a considerable depth. Lucerne will flourish in any good deep loam. The advantages of Lucerne are that it, when well established, produces several heavy cuttings, during the season, and the fodder is suitable for all kinds of stock either for soiling or for hay. The month of May in Central New York is the best time for sowing the seed, and it should be drilled in at the rate of 14 lbs. per acre. The object of sowing in drills is that it may be cultivated the first season, and the weeds kept down; after that it will take full possession of the soil to the exclusion of almost all weeds. It should not be cut the first year before the last week in August, and then not lower down than 10 inches above the ground. The second year it can be cut early in June, and from three to four times during the season. Lucerne was known to the Gauls in the time of Cæsar. The Provence variety is the best seed imported to this country. The plant is known in California as alfalfa. Alsike or hybrid clover, *Trifoleum hybridum*, is another popular European forage plant, and one that has proved of great value in Western New York, either when grown alone or as a component of meadow mixtures for moist land, as the plant is almost an aquatic. Alsike was introduced originally in

Sweden where it has proved of great value to grow in the many rock bounded swales of that country. The plant is the result of impregnation of the Broad Red and White Dutch clovers. It produces enormously under favorable conditions. The flowers are very distinct, being of pale or whitish pink color, the size of the head is about midway between that of the white and red clovers.

Appended is a list of the grasses, native and foreign best adapted to meadow and pasture in the northern and middle states. To wit:

Orchard Grasss,
Kentucky Blue Grass,
Timothy,
Red Top,
Evergreen, or Tall Oat Grass,
Yellow Oat Grass,
Rough Stalked Meadow Grass,
Meadow Foxtail,
Fowl Meadow,
Tall Fescue,
Sheep's Fescue,
Sweet Vernal,
Italian Rye Grass,
Perennial Rye Grass,
Pacy's Rye Grass.
Crested Dogstail,
Meadow Fescue,
Devon Eaver.

From the foregoing kinds our permanent meadow and pasture mixtures are prepared for soils varying to wit:

No. 1 Light Soil.
" 2 Medium Soil.
" 3 Heavy "
" 4 Moist "
" 5 Sandy "
No. 6 Shaded With Trees.
" 7 Park Grounds and Cemeteries.
" 8 Lawns.
" 9 Cricket, Ball and Tennis Grounds, &c.

The Mixed Grasses for Permanent Meadows and Pastures weigh 18 pounds per bushel, and are sold at $2.75 and $3.00 per bushel. It takes of the Mixed Grass alone to seed one acre, two bushels, or one bushel of Mixed Grass, six quarts of Timothy and two quarts clover make a good seeding.

Correspondence solicited by

D. BATCHELOR,
Utica, N. Y.

TESTIMONIALS.

We have many recommendations from farmers and others who have used our grass mixture, from which we select the following:

New Hartford, Aug. 23, 1874.
Messrs. Batchelor Bros:—Gentlemen: I cut this hay from that Meadow Mixture of yours, and it was so heavy in crop and deliciously sweet that I wish I had a number of acres more of it.
Truly Yours,
MORGAN BUTLER.

Salisbury, Dec. 14, 1872.
Messrs. Batchelor Bros:—Gentlemen: The mixed grass seed I bought of you last spring turned out entirely satisfactory; the seeding was far beyond my expectations; the ground was well covered over with a thick matting of grass. I shall want next spring seed enough more of the same kind for three acres.
Yours very truly, F. IVES.

Middleville, N. Y.
Gentlemen: —We have tried your mixtures, both for meadow and pasture, and must say that the result has been good, the crop from the same being much heavier than other parts of our meadow seeded with Timothy and Clover.
Truly yours,
G. H. THOMAS & CO.

Cedarville N. Y., Nov. 10, 1872.
Batchelor Bros:—I tried your mixture of English grasses for permanent pasture, and although the land is rather dry, yet I have never seen a thicker stand of grass than I now have. I most cheerfully recommend your mixture of grass seed. J. L. MILLS.

New Hartford, Nov. 18, 1876.
Messrs. Batchelors:—Gentlemen: I sowed your Meadow mixture last spring, had a good catch, and like it very much, will try more the coming spring.
Yours, &c.,
WM. AUDENREITH.

Palmero Centre, June 28, 1875.
Messrs. Batcheeor Brothers: Sirs: I would say that the mixed Meadow Grass seed that I bought of you two years ago does well on my soil, which is sandy loam. It gave me a good crop of nice hay last year. I have got meadows seeded with the old style of grasses, Clover and Timothy, and shall cut double the hay from the ground seeded with your mixture that I shall on any other piece of the same size. I am more than satisfied with the mixture.
Yours truly, PHILO JOSLIN.

Mrs. Waterman of Newport, Herkimer county, says: "Your mixed grass is the finest I ever saw. I am more than pleased with the result."

Little Falls, Herkimer Co.,
Nov. 6, 1875.
Gents:—I have only to say that the first season I was disappointed, but the next season I found it far ahead of any other part of my adjoining meadows. I shall try it again.
Respectfully yours,
G. W. McCAMMON.

From the Master of the State Grange.
Elmira, N. Y., August 25, 1882.
The mixed grass seeds (orchard grass and meadow oat grass) supplied by you last spring have far exceeded expectation in results already attained. The seeds were sown with oats, which have a heavy crop, and at the harvest the grass was two and a half feet high by measure carefully taken. The seeding has now healthful appearance and vigorous growth notwithstanding the retarding influence of dry weather and burning sun since the oats were removed.
Very respectfully,
W. A. ARMSTRONG.

J. Hart Case, of New Hartford, says: "The Meadow Mixture I purchased of you last season, (1881), turned out fine, 3 tons per acre, whereas a number of my neighbors who seeded with Timothy and Clover failed to get a good catch. I must say I am highly pleased with the result."

Holland Patent, June, 1877.
Mr. Batchelor — Dear Sir: The mixed grasses purchased of you last season is fully up to recommendation, and I can say that I am well pleased with it. F. H. THOMPSON.

New Hartford, July 7, 1877.

Mr. Batchelor—Dear Sir: I have tried your Mixed Grasses for meadows. From my second cutting I can get a better crop than many farmers do from the first cutting of Timothy and Clover.

Yours respectfully,
S. A. CLEVELAND.

So. New Berlin, April 29, '81.

Mr. Batchelor — Dear Sir: Enclosed I send you an order and draft for seven bushels of Meadow mixture. Am much pleased with it so far, and my friends begin to see the value of it. I know it will grow in favor and recommend itself. Yours truly,
JOHN H. RAWLINGS.

Pierrepont Manor, April 29, 1881.

John Batchelor — Dear Sir: My thirteen acres of your mixture is admired. Yours truly,
WM. C. PIERREPONT.

Leonardsville, Feb. 21, '81.

Mr. Batchelor—Sir: I wish to say I have used your meadow and pasture grass. It was sown where the grass was light, a little manure thrown on; no harrowing or rolling. I can truly say the result is three heavy crops the third year, also a good crop of rowan each year. I shall use a little more this spring Yours truly,
M. L. MURPHY.

Marcy, May 5, '81.

Mr. Batchelor—Sir: Some five years ago I seeded several acres with your meadow mixture, and liked it. It stands the drouth and does not heave out. I cut from it much more hay than from any other part of my meadow.

Yours, &c.,
G. W. BRUCKER.

New Hartford, Jan. 19, '82.

D. Batchelor—Dear Sir: I bought the hay cut from meadow mixture sown on Patrick Garvey's place and must say it is the best and largest crop I ever saw in a meadow. I intend to sow some of your mixture the coming season.

Truly yours,
LYNOTT B. ROOT.

Geneva, N. Y., July 19, '83.

Mr. Batchelor — Dear Sir: The Meadow Mixture which I bought of you last season, I have the pleasure of reporting favorably upon. It has done remarkably well, and I am pleased with the result. Yours sincerely,
ROB'T. J. SWAN.

At a meeting of the Elmira Farmer's Club, held Nov. 3d, 1883, a discussion arose on grasses, during which President McCann said: "I sowed Mr. Batchelor's Mixture last spring on wheat. The grass seed was six varieties, and I never had a finer catch in all my experience. It is impossible to say what kind of grasses took most vigorous hold. It is enough for me to know that the land was very thickly set with grass; its growth so large that some of it fell down before the wheat harvest. The growth has been really surprising, and what is extremely pleasing is the character of the seeding; it is so thick that there is already the assurance of a firm sod."

Secretary Armstrong said: "In the spring of 1882, I sowed a mixture of grass seed prepared by Mr. Batchelor, and if I may judge from the present appearance, the results indicate a surprising degree of success."

New Hartford, Aug. 9, '82.

Mr. Batchelor—Dear Sir: Meadow Mixture purchased of you last season turned out fine. Cut 3 tons per acre. A number of my neighbors seeded with timothy and clover and failed to get a good catch. Respectfully,
J. HART CASE.

[From Senator Warner Miller.]
Herkimer, N.Y., Oct. 3d, '83.

D. Batchelor — Dear Sir: Please send me five bushels more of mixed grass seed same as last. In answer to your inquiries, say mixed grasses have given entire satisfaction.

Yours, &c.,
WARNER MILLER.

Boonville, Aug. 1st, 1884.

Mr. Batchelor: In reply to your inquiry I say that the mixed grass I received from you for my light soil has produced the best and the largest crops of hay I ever cut. I shall want enough seed next season for 10 acres more.

Yours truly,
L. W. FISKE.

Palentine Bridge, N.Y., Apr. 1, '84.

Mr. Batchelor—Dear Sir: I tried your mixed grass two years ago and am well satisfied with the result. Please ship me four bushels more.

Yours respectfully,
C. A. DILLENBECK.

Ogdensburgh, N.Y., Apr. 4, '84.

Messrs. Batchelors—Gents: Enclosed please find draft for amount of bill

The mixed seeds I purchased of you last season have done finely and I have a good pasture.

Yours truly,
L. M. SOPER.

BRISBIN, N.Y., Apr. 4, '84.

D. BATCHELOR, ESQ—DEAR SIR: I had seven bushels of your mixed grass in '82 and am well pleased with the result and will want more this spring.

Yours truly,
ELI BARTO.

VICTOR, ONTARIO CO., N.Y.,
March 19, '84.

D. BATCHELOR, ESQ — DEAR SIR: I want sixteen bushels of your mixed grass best adapted to dry, gravelly ground. I have a fine seeding of the mixed grasses purchased from you last spring. Respectfully yours,
HIRAM WILCOX.

[**A Testimonial from the New York Agricultural Experiment Station.**
Director, Dr. E. S. Sturtevant.

GENEVA, ONTARIO CO., N.Y.,
July 9, 1884.

DANIEL BATCHELOR, ESQ.—DEAR SIR: In response to your inquiry.—On April 17, 1883, we sowed the following mixtures of grass seed, furnished by you, in our orchard: No. 1—2½ bushels Perennial Rye, Rough Stalk, Meadow Foxtail, Meadow Fescue, Tall Fescue and Sweet Vernal in mixture. No. 2—5 bushels Pacey's Rye, Sheep's Fescue, Creeping Bent, Kentucky Blue and White Clover in mixture. No. 3—5 bushels Italian Rye, Fowl Meadow, Timothy, Yellow Oat, Kentucky Blue, Red Top, and Red Clover in mixture. No. 4—2½ bushels Orchard Grass and Meadow Oat grass mixed.

These grasses were sown by themselves without crop. The season of 1884 showed a *success* for all. No. 4 perhaps the largest crop. No 3 the best quality. No. 1 and No. 2 *also excellent.*

Very truly yours,
E. LEWIS STURTEVANT.

GOUVERNEUR, N.Y., Apr. 4, '84.

MR. BATCHELOR—DEAR SIR: Please send me 5 bushels of your Mixed meadow grass seed by express. The seed I had of you last season gave good satisfaction.

Yours truly
I. G. FARMER.

L. G. SAVAGE, Holland Patent, N. Y., said he purchased Meadow Mixture five years ago and it made a better sod, cut a larger crop and lasted much better than timothy.

MASONVILLE, DELAWARE CO., N.Y.,
April 15, '84.

MR. BATCHELOR: Please forward me 3 bushels Meadow Mixture. I am much pleased with the seed I had of you last season. Yours truly,
JOSEPH A. HALL.

Correspondence solicited by D. Batchelor, 14 Liberty Street, Utica, N. Y.

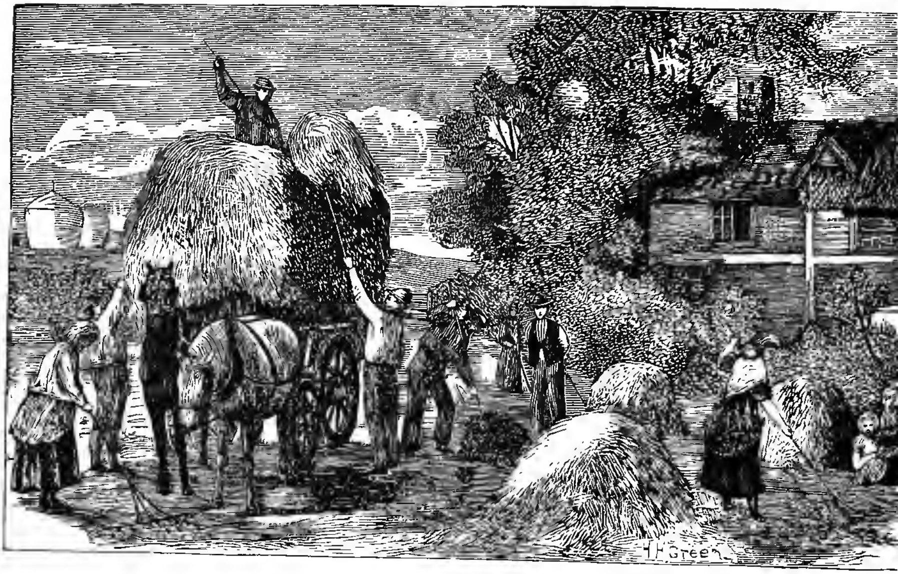
THE following from an agricultural writer in the *New York Times* for August 5th, 1884, is quite to the point:

TOP DRESSING MEADOWS.

Few American farmers know what a perfect meadow is. We do not give the requisite preparation of the ground; the adequate amount of seed, the proper quantity of manure, or the right varieties of grass to make a permanent and profitable meadow. The English farmers understand this business well and practice it liberally; consequently American travelers noting the deep-verdure and luxuriant herbage of an English meadow, are astonished at the difference between it and an American field, and suppose there are insuperable obstacles in the soil and the climate, to which are owing the brown and bare appearance of our grass lands. But the English farmers frequently spend more than the whole value of an American farm in laying down one of their fields to grass, and they have a common proverb among them that, "it breaks a man to make a pasture." But they acknowledge that the soil returns all favors of the kind granted to it by also believing that "it makes a man to break a pasture."

Until we have these ideas in regard to meadows we shall continue to have the poor apologies for them which are so common, and which are better fitted to plow under for a corn crop than for any other use, and yet the greatest need of our agriculture is permanent grass lands, and such meadows as will yield four or five tons of hay per acre or fatten one bullock to the acre. It is a mistake to think that our climate forbids it. * * * * *
These considerations are timely just now when the hay has been cut and taken in, and the meadow is left without protection from the heat and drought and without food to make up for the exhaustion of the crop which has been taken off. Our grass seedings are makeshifts and merely incidents in a short rotation, in which the sod is plowed under to begin a new course, and in this case its value is no more than that which has been given to it in its preparation. We cannot get something from nothing, and if we want a grass field to last 40 or 50 years we must lay out in its preparation more work and value than for one which is exhausted in three years.

It takes time, however, to realize all our hopes and desires in this direction, but much may be done by caring for such grass as we have in a better manner than is usual. And we may profitably make a beginning by top dressing the meadows now, to enable them to make a quick recovery from the cutting and to strengthen the roots against the winter."


H Green